

FUKUI, A. et al.
Appl. No. 10/815,976
Atty. Ref.: 900-495
AMENDMENT AFTER FINAL REJECTION
April 28, 2008

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

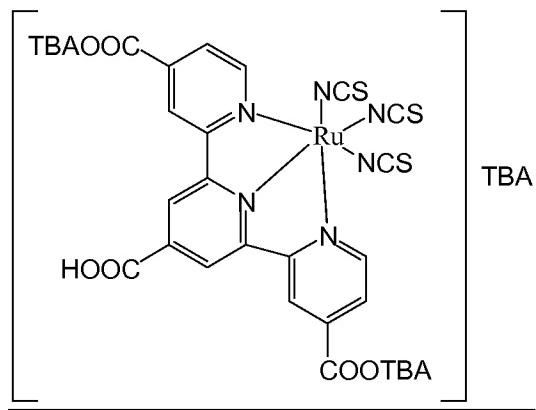
1. (Currently Amended) A dye-sensitized solar cell comprising a transparent conductive layer, a porous semiconductor layer on which a dye sensitizer is adsorbed, a carrier transport layer and [[an]]a counter electrode which are formed in this order on a transparent substrate,

wherein an absorbance peak of the porous semiconductor layer is located on a shorter wavelength side of the absorbance spectrum than that of the porous semiconductor layer observed immediately after the dye sensitizer is adsorbed

wherein

the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II)bis-tetrabutylammonium and the absorbance peak of the porous semiconductor layer is located within the range of 490 nm ± 35 nm, or

the dye sensitizer is tris(isothiocyanato)-ruthenium(II)-2,2':6',2"-terpyridine-4,4',4"-tricarboxylic acid, tris-tetrabutylammonium salt having the formula (1):



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(wherein TBA is tetrabutylammonium residual group) and the absorbance peak of the porous semiconductor layer is located within the range of 580 nm ± 35 nm.

2. (Original) The dye-sensitized solar cell of claim 1, wherein the porous semiconductor layer is made of titanium oxide.

Claims 3-20. (Canceled)

21. (new) A dye sensitized solar cell comprising a transparent conductive layer, a porous semiconductor layer on which a dye sensitizer is adsorbed, a carrier transport layer and a counter electrode which is formed in this order on a transparent substrate,

wherein an absorbance peak of the porous semiconductor layer is located on a shorter wavelength side of the absorbance spectrum after light radiation than that of the porous semiconductor layer observed immediately after the dye sensitizer is adsorbed.

22. (new) The dye-sensitized solar cell of claim 21, wherein the porous semiconductor layer is made of titanium oxide.

23. (new) The dye-sensitized solar cell of claim 21, wherein the dye sensitizer is an organic dye or a metal complex dye.

24. (new) The dye-sensitized solar cell of claim 21, wherein the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II) and the absorbance peak of the porous semiconductor layer is located within the range of 500 nm ± 30 nm.

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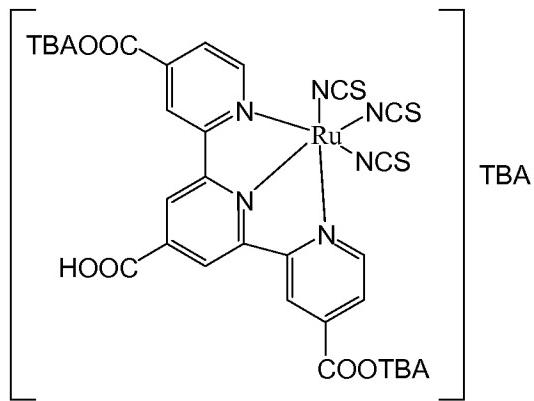
25. (new) The dye-sensitized solar cell of claim 22, wherein the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II) and the absorbance peak of the porous semiconductor layer is located within the range of 500 nm ± 30 nm.

26. (new) The dye-sensitized solar cell of claim 21

wherein

the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II)bis-tetrabutylammonium and the absorbance peak of the porous semiconductor layer is located within the range of 490 nm ± 35 nm, or

the dye sensitizer is tris(isothiocyanato)-ruthenium(II)-2,2':6',2"-terpyridine-4,4',4"-tricarboxylic acid, tris-tetrabutylammonium salt having the formula (1):



(wherein TBA is tetrabutylammonium residual group) and the absorbance peak of the porous semiconductor layer is located within the range of 580 nm ± 35 nm, or
the dye sensitizer is a compound with the following formula:

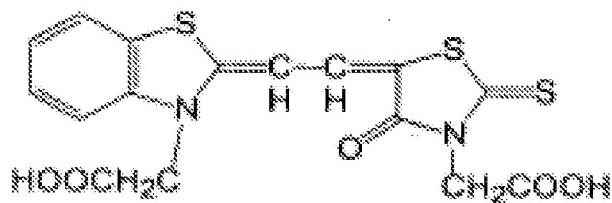
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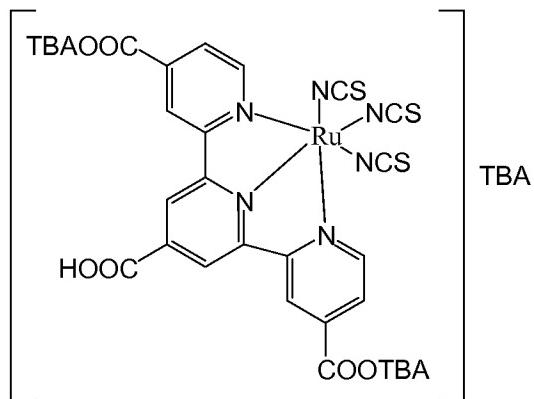


27. (new) The dye-sensitized solar cell of claim 22

wherein

the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II)bis-tetrabutylammonium and the absorbance peak of the porous semiconductor layer is located within the range of $490\text{ nm} \pm 35\text{ nm}$, or

the dye sensitizer is tris(isothiocyanato)-ruthenium(II)-2,2':6',2"-terpyridine-4,4',4"-tricarboxylic acid, tris-tetrabutylammonium salt having the formula (1):



(wherein TBA is tetrabutylammonium residual group) and the absorbance peak of the porous semiconductor layer is located within the range of $580\text{ nm} \pm 35\text{ nm}$, or
the dye sensitizer is a compound with the following formula:

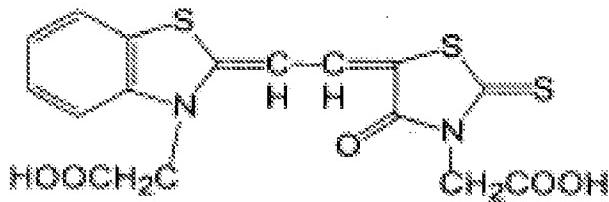
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28. (new) A dye sensitized solar cell comprising a transparent conductive layer, a porous semiconductor layer on which a dye sensitizer is adsorbed, a carrier transport layer and a counter electrode which is formed in this order on a transparent substrate,

wherein an absorbance peak of the porous semiconductor layer is located on a shorter wavelength side of the absorbance spectrum after chemical treatment than that of the porous semiconductor layer observed immediately after the dye sensitizer is adsorbed,

wherein the chemical treatment is carried out by immersing the porous semiconductor layer in a solution containing at least one heteroatom-containing cycle compound after the dye sensitizer is adsorbed on the porous semiconductor layer,

wherein an amount of the solution is at least 30 times as much as that of the porous semiconductor layer by volume.

29. (new) The dye-sensitized solar cell of claim 28, wherein the porous semiconductor layer is made of titanium oxide.

30. (new) The dye-sensitized solar cell of claim 28, wherein the dye sensitizer is an organic dye or a metal complex dye.

31. (new) The dye-sensitized solar cell of claim 28, wherein the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II) and the

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absorbance peak of the porous semiconductor layer is located within the range of 500 nm ± 30 nm.

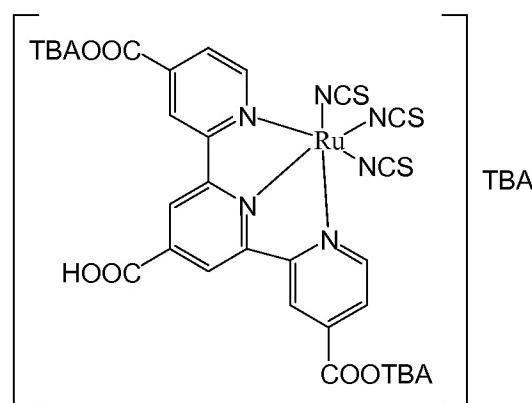
32. (new) The dye-sensitized solar cell of claim 29, wherein the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II) and the absorbance peak of the porous semiconductor layer is located within the range of 500 nm ± 30 nm.

33. (new) The dye-sensitized solar cell of claim 28

wherein

the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II)bis-tetrabutylammonium and the absorbance peak of the porous semiconductor layer is located within the range of 490 nm ± 35 nm, or

the dye sensitizer is tris(isothiocyanato)-ruthenium(II)-2,2':6',2"-terpyridine-4,4',4"-tricarboxylic acid, tris-tetrabutylammonium salt having the formula (1):



(wherein TBA is tetrabutylammonium residual group) and the absorbance peak of the porous semiconductor layer is located within the range of 580 nm ± 35 nm, or

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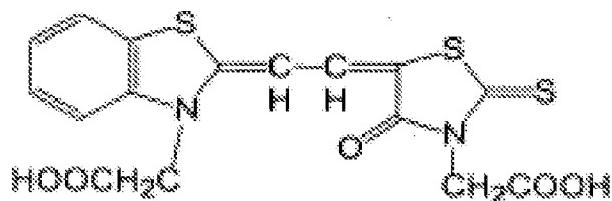
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the dye sensitizer is a compound with the following formula:

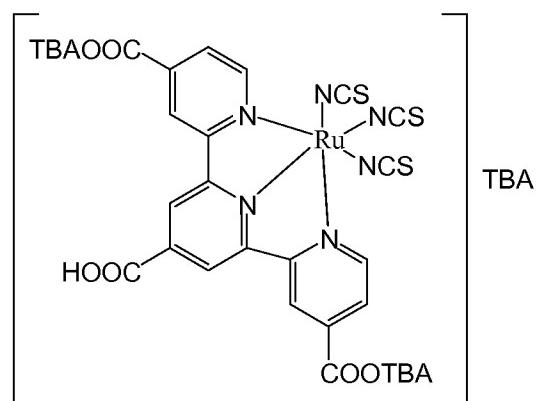


34. (new) The dye-sensitized solar cell of claim 29

wherein

the dye sensitizer is cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)-ruthenium(II)bis-tetrabutylammonium and the absorbance peak of the porous semiconductor layer is located within the range of 490 nm ± 35 nm, or

the dye sensitizer is tris(isothiocyanato)-ruthenium(II)-2,2':6',2"-terpyridine-4,4',4"-tricarboxylic acid, tris-tetrabutylammonium salt having the formula (1):



(wherein TBA is tetrabutylammonium residual group) and the absorbance peak of the porous semiconductor layer is located within the range of 580 nm ± 35 nm, or

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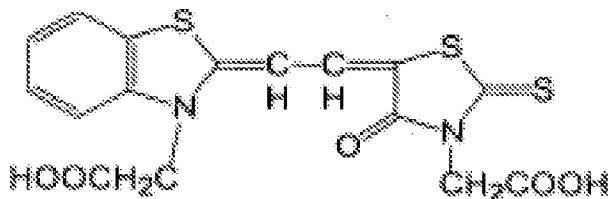
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the dye sensitizer is a compound with the following formula:



35. (new) The dye-sensitized solar cell of claim 28, wherein the chemical treatment is carried out by immersing in the solution for 1 minute to 30 hours the porous semiconductor layer after the dye sensitizer is adsorbed.

36. (new) A dye-sensitized solar cell comprising a transparent conductive layer, a porous semiconductor layer on which a dye sensitizer is adsorbed, a carrier transport layer and a counter electrode which are formed in this order on a transparent substrate, wherein an absorbance peak of the porous semiconductor layer is located on a shorter wavelength side of the absorbance spectrum than that of the porous semiconductor layer absorbed immediately after the dye sensitizer is adsorbed, wherein the dye sensitizer is an organic dye.

37. (new) The dye-sensitized solar cell of claim 36 wherein the porous semiconductor layer is made of titanium oxide.

38. (new) The dye-sensitized solar cell of claim 36, wherein the dye sensitizer is a compound with the following formula

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